Amendments to the Claims

This listing of the claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A carriage servo control system for servo-controlling a movement of a carriage device in a ~~vertical~~ direction transverse to a track formed on a recording medium, in which the carriage device has a detecting device mounted thereon for transmitting an optical beam to the track so as to perform at least one of recording and reproduction of information on and from the track, said carriage servo control system comprising:

~~an error signal producing device for producing an error signal showing an error between a radiated position of the optical beam on the recording medium and a position of the track;~~

an input terminal for receiving a tracking equalizer signal indicative of a phase compensated error between a focus position of the optical beam and a target track position;

a ~~periodic signal producing device~~ pulse producing unit for producing a periodic signal ~~of which~~ that has a constant period; ~~is constant and previously determined so as to correspond to a movement accuracy of the carriage device;~~

an averaging unit for producing an averaged equalizer signal based on the tracking equalizer signal;

a ~~drive signal producing device~~ multiplier for producing a drive signal for driving said carriage device based on at least a periodic sample of the averaged equalizer signal generated by the averaging unit and at least a periodic sample of the periodic signal generated by the pulse producing unit; and

an output terminal for outputting the drive signal produced by the multiplier to control the movement of the carriage device.

~~to move the carriage device on a basis of both the produced periodic signal and the produced error signal; and~~

~~a drive signal supplying device for supplying the produced drive signal to a moving device configured to move the carriage device in the vertical direction, so as to move said carriage device by the moving device on a basis of the supplied drive signal,~~

~~wherein said drive signal producing device produces the drive signal on a basis of a partial error signal and the periodic signal, said partial error signal serving as the error signal having a value not less than a predetermined threshold value; and~~

~~wherein said drive signal producing device multiples the periodic signal and the partial error signal produced together to produce the drive signal.~~

2. (Currently amended) The carriage servo control system according to claim 1, wherein said ~~periodic signal producing device~~ pulse producing unit produces the periodic signal made up of only a signal component with a frequency not more than a predetermined frequency.

Claims 3-10 (Cancelled)

11. (Currently amended) An information recording medium on which program for carriage servo control is recorded so that the program is readable by a computer incorporated in a carriage servo control system for servo-controlling movement of a carriage device in a ~~vertical~~ direction transverse to a track formed on a recording medium, in which the carriage device has a device mounted thereon for transmitting an optical beam to the track so as to perform at least one of recording and reproduction of information on and from the track, said program causing the computer to ~~function as~~:

~~an error signal producing device for producing~~ generate a tracking equalizer signal that shows an error between a focus position of the optical beam and a target track position after phase compensation; ~~an error signal showing an error between a radiated position of the optical beam on the recording medium and a position of the track;~~

~~a periodic signal producing device for producing~~ generate a periodic signal ~~of which~~ that has a constant period ~~is constant and previously determined so as to correspond to a movement accuracy of the carriage device~~;

generate an averaged equalizer signal based on said tracking equalizer signal; and

generate ~~a drive signal producing device for producing~~ a drive signal for controlling said carriage device based on at least a periodic sample of the averaged equalizer signal and at

least a periodic sample of the periodic signal. ~~to move the carriage device on a basis of both the produced periodic signal and the produced error signal; and~~

~~a drive signal supplying device for supplying the produced drive signal to a moving device configured to move the carriage device in the vertical direction, so as to move said carriage device by the moving device on a basis of the supplied drive signal;~~

~~wherein said drive signal producing device produces the drive signal on a basis of a partial error signal and the periodic signal, said partial error signal serving as the error signal having a value not less than a predetermined threshold value; and~~

~~wherein said drive signal producing device multiples the periodic signal and the partial error signal produced together to produce the drive signal.~~

12. (Previously Presented) The carriage servo control system according to claim 7, wherein said periodic signal producing device produces the periodic signal made up of only a signal component with a frequency not more than a predetermined frequency.

13. (New) The carriage servo control system according to claim 1, further comprising a wave checking unit for producing a window signal based on the averaged equalizer signal generated by the averaging unit, wherein said window signal and said averaged equalizer signal are used to generate said at least a periodic sample of the averaged equalizer signal.

14. (New) The carriage servo control system according to claim 1, further comprising a wave checking unit for producing a window signal based on the averaged equalizer signal generated by the averaging unit, wherein said window signal and said periodic signal are used to generate said at least a periodic sample of the periodic signal.

15. (New) The carriage servo control system according to claim 1, wherein said tracking equalizer signal was generated from an analog tracking equalizer signal by an analog-to-digital (A/D) converter.

16. (New) The carriage servo control system according to claim 15, wherein said analog tracking equalizer signal was generated from a non-equalized analog tracking equalizer signal by an equalizer unit.

17. (New) The carriage servo control system according to claim 16, wherein said non-equalized analog tracking equalizer signal was generated from a non-filtered non-equalized analog tracking equalizer signal by low-pass filter.

18. (New) The carriage servo control system according to claim 1, wherein said drive signal is concerted to an analog drive signal by a digital-to-analog (D/A) converter before driving said carriage device.

19. (New) A method for controlling a movement of a carriage device in a direction transverse to a track formed on a recording medium, in which the carriage device has a detecting device mounted thereon for transmitting an optical beam to the track so as to perform at least one of recording and reproduction of information on and from the track, said method comprising:

providing a tracking equalizer signal indicative of a phase compensated error between a focus position of the optical beam and a target track position;

generating a periodic signal that has a constant period;

generating an averaged equalizer signal based on said tracking equalizer signal; and

generating a drive signal for controlling said carriage device based on at least a periodic sample of the averaged equalizer signal and at least a periodic sample of the periodic signal.

20. (New) The method to claim 19, further comprising generating a window signal based on the averaged equalizer signal, wherein said window signal and said averaged equalizer signal are used to generate said at least a portion of the averaged equalizer signal.

21. (New) The method to claim 19, further comprising generating a window signal based on the averaged equalizer signal, wherein said window signal and said periodic signal are used to generate said at least a portion of the periodic signal.

22. (New) The method of claim 19, wherein said tracking equalizer signal was generated from an analog tracking equalizer signal by an analog-to-digital (A/D) converter.

23. (New) The method of claim 22, wherein said analog tracking equalizer signal was generated from a non-equalized analog tracking equalizer signal by an equalizer unit.

24. (New) The method of claim 23, wherein said non-equalized analog tracking equalizer signal was generated from a non-filtered non-equalized analog tracking equalizer signal by low-pass filter.

25. (New) The method of claim 19, wherein said drive signal is concerted to an analog drive signal by a digital-to-analog (D/A) converter before driving said carriage device.